Title (en)

Use of a densitometer for adaptive control of printer heater output to optimize drying time for different print media

Title (de)

Verwendung von Densitometer zur angepassten Steuerung der Wärmeabgabe eines Heizelementes, um die Trocknungszeit für unterschiedliche Druckmedien zu optimieren

Title (fr)

Utilisation d'un densimètre pour une commande adaptée d'une sortie d'un élément chauffant d'une imprimante pour optimiser le temps de séchage de différents supports d'impression

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Application

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Abstract (en)

An inkjet printer whereby high density graphics images can be printed without smearing and without either a reduction of print speed or a degradation of print quality is disclosed. Previous methods of inducing drying on inkjet output in printers with heaters did not use print density to adjust heater output. Heater output was simply adjusted based on the type of media so destruction of the media did not take place. The media was given enough time to dry by either lowering the print speed of the printer or utilizing special multi-pass print modes. As a result, the throughput of the printer was reduced. The disclosed inkjet printer allows for greater heater drying to be applied to output printed with greater densities of ink. Thus, drytime, bleed and cockle are reduced. Conversely, on plots printed with lesser amounts of ink, heater output is redued yielding output with reduced curl and thermal deformation of the media. The disclosed inkjet printer also allows the thermal absorption profiles of different media to be stored in firmware and accessed by the print driver. The correlation of the thermal absorption profiles and print density allows control of the heater for very specific and optimized drying for a given media and print file. In the case of families of similar media, relatively simple printer instructions would yield precise heater control for optimized drying across a family of media for the entire range of print densities. Thus, printing speed and print modes are not be governed by drying rates. The inkjet printer comprises a carriage mounted inkjet printing mechanism for applying liquid ink to a print medium as successive columns of dots contained within horizontal swaths to thereby form a portion of the image of an image to be printed on a sheet of print media. The printer and method comprises the steps determining a maximum density of dots in a first horizontal swath, applying a variable quantity of heat to the media based upon the maximum density of said dots and the nature of the print media, and moving a plurality of inkjet nozzles across the print medium and applying a specified amount of liquid ink from specified inkjet nozzles onto the print medium as successive columns of dots contained within a first swath of the image. The maximum print density can be calculated by counting drops of ink in each of several overlapping grids. Thus, the inkjet printer utilizes information about the print density to control the heater output level rather than controlling the print speed of the inkjet printer, or using multi-pass print modes which reduce printer throughput. Similarly, this invention can be applied to print devices that control air flow or fan speed or any other device that provides direct drying of printed media based on the analysis of the ink density of the printing being performed. <IMAGE>

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